

November 8, 2010

**VIA U.S. MAIL AND EMAIL**

Darrell Nitschke  
Executive Secretary  
North Dakota Public Service Commission  
600 E. Boulevard Ave., Dept. 408  
Bismarck, North Dakota 58505-0480

RE: Bison 1 Wind Project  
Oliver/Morton Counties  
Case No. PU-09-151  
Request to Modify Certificate of Site Compatibility

Dear Mr. Nitschke:

As discussed during the November 2, 2010 North Dakota Public Service Commission (“Commission”) Administrative Matters agenda hearing, Minnesota Power submits for the Commission’s consideration a request to modify the Certificate of Site Compatibility for Energy Conversion Facility No. 15 (“Certificate”) dated September 29, 2009 in the above-referenced Docket. Minnesota Power understands and appreciates the Commission’s comments that this approval must be done on the record and subject to a formal process as specified by the Commission. Enclosed is an original and ten copies of this request, a supporting sworn affidavit of James Atkinson, Proposed Supplemental Findings of Fact, Conclusions of Law and Order and an affidavit of service.

Minnesota Power is requesting two modifications to the Certificate: (1) move one wind turbine generator (No. 30) approximately 215 feet to the east-southeast to reduce wake effect from another wind turbine generator; and (2) authority to utilize Siemens direct drive turbine technology for Phase 1B with 3.0MW wind turbine generators and a resulting increase in overall total generating capacity to 81.8MW and a decrease by two in the total number of turbines to 31.

This request for modification is made pursuant to N.D.C.C. §§ 49-05-09 and 49-22-08(4). N.D.C.C. § 49-22-08(4) provides that: “An application for an amendment of a certificate shall be in such form and contain such information as the commission shall prescribe.” Based upon Minnesota Power’s review, the Commission’s rules do not currently prescribe the form and information of an application for an amendment of a certificate.

88 PU-09-151 Filed 11/08/2010 Pages: 38  
Request to modify the Certificate of Site Compatibility  
Allte, Inc.  
David Moeller, Minnesota Power

30 west superior street / duluth, minnesota 55802-2093 / 218-723-3963 / www.mnpower.com

If specific statutory or regulatory authority is not prescribed, Minnesota Power believes the Commission's general authority under N.D.C.C. § 49-05-09 to amend or alter any decision, subject to providing notice to the public utility, is applicable to Minnesota Power's request. Minnesota Power respectfully asserts that the Commission's twenty (20) day notice procedure under N.D. Admin. Code 69-02-04-01 and the Notice of Public Hearing and Notice of Opportunity procedure under N.D.C.C. § 49-22-13(4) would be applicable to a modification to the Certificate since the Commission's rules do not prescribe a specific notice provision for amendments of orders. In addition, the Commission's notice authority under N.D.C.C. § 49-22-13(2) is analogous to Minnesota Power's request since this modification to the Certificate is similar to a transfer of a certificate or a waiver of procedures. The Commission has established rules for deviations and variances for transmission route permits that would be comparable and those rules set the standard for obtaining modifications to transmission route permits that the utility must demonstrate good cause. *See* N.D. Admin. Code 69-06-05-02. However, no specific modification rules have been promulgated to address situations after the Commission's issuance of a Certificate of Site Compatibility. *See* N.D. Admin. Code 69-06-04.

On September 29, 2009, the Commission issued Minnesota Power, an operating division of ALLETE, Inc., a Certificate of Site Compatibility for its Bison 1 Wind Project in Oliver and Morton counties. The Commission certified Minnesota Power's project "consisting of up to 33 2.3 MW wind turbine generators and associated facilities in Morton and Oliver Counties of North Dakota." Minnesota Power commenced construction in October 2009 and has been providing weekly construction updates to the Commission as required by the September 29, 2009 Findings of Fact, Conclusions of Law and Order ("Order"). As part of Phase 1A of the project, Minnesota Power is in the process of energizing 16 2.3 MW Siemens turbines. Minnesota Power has been evaluating the potential benefits of installing newer, larger capacity wind turbine generators for its second phase of Bison 1, (Phase 1B) scheduled to be in service by December of 2011. Minnesota Power's rationale for deploying this technology is provided in the accompanying affidavit of James Atkinson as well as outlined below for the Commission's consideration. Minnesota Power also commits to timely file any other information the Commission deems relevant to this request.

Equipment: The new turbine type is Siemens model SWT-3.0-101 which features a direct drive generator and no gear box, eliminating about half of the total parts in the turbine. The new turbine is anticipated to deliver up to 20% more energy per turbine through the higher capacity and improved efficiency while weighing about 10 tons less than the SWT-2.3-101 turbines being deployed on the first phase of Bison 1 (Phase 1A). The new turbines are deployed on the same 80 meter towers and are fitted with the same 101 meter diameter rotor hub-blade assembly. The new turbines may require slightly larger foundations. Though final engineering is not yet complete, estimates indicate an increase in foundation diameter of up to one foot.

Project Layout: The main effect of utilizing the new turbine technology on project layout would be a decrease by two in the total number of turbines. If approved by the Commission, this modification would result in a total build out for Bison 1 of 31 turbines (16 SWT-2.3-101 and 15 SWT-3.0-101) and a total generating capacity of 81.8MW. Previously the total generating capacity was 75.9MW. With the elimination of two turbines comes a reduction in the total length of access roads (approximately one less mile) and underground collector system (approximately two less miles). In addition to the turbine change, Minnesota Power is requesting Commission approval to move wind turbine generator No. 30 approximately 215 feet to the east-southeast. Minnesota Power has conducted further performance modeling and determined that moving wind turbine generator No. 30 will reduce wake effect from wind turbine generator No. 2.

Shadow Flicker: The elimination of two turbines from the project layout will result in a decrease in shadow flicker exposure at certain sensitive receptors. The shadow flicker produced by 14 of the remaining turbines would not change as a result of this amendment because the new turbines utilize the same towers, tower locations and rotor hub-blade assemblies.

Noise Levels: As measured 10 meters above ground level at the turbine location with an eight meter per second wind speed, the SWT-3.0-101 turbine is expected to produce a sound power level of 108 decibels, half a decibel less than the sound power level used in modeling presented in Section 7.6.2 of Minnesota Power's original site permit application submitted to the Commission in May 2009. As a result, the original modeling remains valid for the new turbine because a change of at least 3 decibels is necessary for human perception.

Finally, in reviewing the September 29, 2009 Order and accompanying Certificate Minnesota Power believes there would need to be modifications to the following provisions as set forth in the attached Proposed Supplemental Findings of Fact, Conclusions of Law and Order.

In the Findings of Fact:

Paragraph 6 — modify references to generation capacity and turbine size.

Paragraph 7 — modify references to turbine size.

Paragraph 10 — modify to reflect Minnesota Power's ownership of the DC Line.

Paragraph 13 — modify references to the number of turbines.

Paragraph 24 — may require additional language to reflect the additional cultural resource survey for the one turbine location change.

In the Order:

Paragraph 1 — note the reissuance of the Certificate in accordance with a revised Order.

Paragraph 3 — modify references to the authority to site and construct up to 75.9 MW of wind turbines.

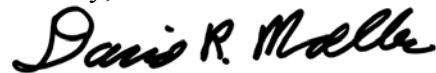
In Certificate No. 15:

The reference to 33 2.3 MW wind turbine generators requires modification in accordance with the revised Order.

Due to turbine manufacturing constraints, Minnesota Power is seeking Commission approval by December 23, 2010 to deploy the new wind turbines on Phase 1B.

Please let us know if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "David R. Moeller". The signature is written in a cursive, flowing style.

David R. Moeller

kl

Attachments – Affidavit of James Atkinson

Proposed Supplemental Findings of Fact, Conclusions of Law and Order

c: James Atkinson, Minnesota Power  
Ron Gullicks, Minnesota Power

**STATE OF NORTH DAKOTA  
PUBLIC SERVICE COMMISSION**

ALLETE, Inc.  
Bison 1 Wind Project – Oliver/Morton Counties  
Siting Application

Case No. PU-09-151

**PROPOSED SUPPLEMENTAL FINDINGS OF FACT, CONCLUSIONS OF LAW AND  
ORDER**

~~September 29, 2009~~ December, 2010

**Appearances**

Commissioners Kevin Cramer, Tony Clark, and Brian P. Kalk.

David R. Moeller, Senior Attorney, Minnesota Power, 30 West Superior Street,  
Duluth, MN 55803, on behalf of the Applicant.

~~Annette Bendish~~ Ilona Jeffcoat-Sacco, ~~Legal~~ General Counsel, and Mark  
Gruman, Legal Counsel, Public Service Commission, State Capitol, Bismarck, North  
Dakota 58505, on behalf of the Public Service Commission.

Al Wahl, Administrative Law Judge, Office of Administrative Hearings, 1701  
North Ninth Street, Bismarck, North Dakota 58501-1882, as Procedural Hearing Officer.

**Preliminary Statement**

On April 7, 2009, Minnesota Power, an operating division of ALLETE, Inc. (Minnesota Power) submitted a Letter of Intent (LOI) to submit an application for a Certificate of Site Compatibility for a 75.9 MW wind energy conversion facility in Morton and Oliver counties, North Dakota. Minnesota Power requested in its LOI that the Commission shorten the one-year waiting period required between filing of the LOI and the filing of an application.

On April 13, 2009, the North Dakota Public Service Commission (Commission) shortened the one-year waiting period to one day, and assessed a filing fee of \$85,000.00 due upon filing of an application.

On May 12, 2009, Minnesota Power filed an Application for a Certificate of Site Compatibility (Application) authorizing construction of the 75.9 MW Bison I Wind Project (Bison I) consisting of up to 33 wind turbine generators and associated facilities in Morton and Oliver counties, North Dakota.

On July 8, 2009, the Commission deemed the Application complete conditioned on the filing of final wind turbine locations on or before August 18, 2009, and issued a Notice of Filing and Notice of Hearing, scheduling a public hearing for August 25, 2009, at 10:00 a.m. CDT, at the Sunset Inn, 1305-8th St. N., New Salem, North Dakota. The Notice identified the following issues to be considered:

1. Will the location, construction and operation of the proposed facilities produce minimal adverse effects on the environment and upon the welfare of the citizens of North Dakota?
2. Are the proposed facilities compatible with the environmental preservation and the efficient use of resources?
3. Will the proposed facility locations minimize adverse human and environmental impacts while ensuring continued system reliability and integrity, and ensuring that energy needs are met and fulfilled in an orderly and timely fashion?

On August 12, 2009, Minnesota Power filed an executed Certification Relating to Order Provisions – Wind Energy Conversion Facility Siting.

On August 18, 2009, Minnesota Power submitted a map detailing the proposed final locations for turbines. Minnesota Power also supplemented its Application with additional information on wetland delineation, cultural resources surveys and agency consultation.

On August 25, 2009, a public hearing was held as scheduled.

~~Having allowed all interested persons an opportunity to be heard, and having heard, reviewed, and considered all testimony and evidence presented, the Commission makes the following:~~

On September 29, 2009, the Commission issued Minnesota Power, an operating division of ALLETE, Inc., a Certificate of Site Compatibility for its Bison 1 Wind Project in Oliver and Morton counties. The Commission certified Minnesota Power's project "consisting of up to 33 2.3 MW wind turbine generators and associated facilities in Morton and Oliver Counties of North Dakota." Minnesota Power commenced construction in October 2009 and has been providing weekly construction updates to the Commission as required by the September 29, 2009 Findings of Fact, Conclusions of Law and Order (Order).

On November 8, 2010, Minnesota Power submitted a request to modify the Certificate of Compatibility.

On November \_\_\_\_, 2010, the Commission issued a Notice of Filing and Notice of Hearing, scheduling a public hearing for December \_\_\_\_, 2010.

On November 24, 2010, an informal public hearing was held by the Commission to discuss this matter.

On December \_\_\_\_, 2010 a public hearing was held as scheduled and noticed. Having allowed all interested persons an opportunity to be heard, and having heard, reviewed, and considered all testimony and evidence presented, the Commission makes the following modifications to its Order and Certificate:

### **Supplemental Findings of Fact**

1. Minnesota Power, an operating division of ALLETE, Inc., is a Minnesota corporation and Minnesota public utility as defined under Minn. Stat. § 216B.02, subd. 4.
2. ALLETE, Inc. is registered to conduct business in the State of North Dakota, as evidenced by a Certificate of Good Standing issued by the North Dakota Secretary of State on October 28, 2008.
3. Minnesota Power proposes to construct and own a wind energy facility (the Bison I Wind Project) to be located in Morton and Oliver counties, North Dakota, approximately 10 miles north and northwest of New Salem, North Dakota. The project area consists of approximately 9,500 acres (15 square miles). The wind turbines will be placed throughout the project site.
4. Associated facilities to be constructed within the project area include access roads, underground electrical and feeder lines, an electrical substation, meteorological towers, wind monitoring stations, and an operations and maintenance building.
5. North Dakota Century Code § 49-22-16 provides that no energy conversion facility site shall be designated if it violates any county or city land use, zoning, building rules, regulations or ordinances. Morton and Oliver counties require zoning permits for construction, and Minnesota Power has obtained all necessary permits.

### **Project Design**

6. The project will have a nameplate (gross) generating capacity of ~~81.875.9~~ MW, consisting of ~~1633~~ 2.3 MW and 15 3.0 wind turbines and associated facilities. Assuming net capacity factors of 45%, projected average annual output is estimated at 300,000 MWh per year.
7. Minnesota Power plans to use Siemens 2.3 MW and 3.0 MW turbines. These are utility-grade wind turbines with a nominal nameplate rating of 2,300 kW and 3,000

| [kW, respectively](#). Each turbine will have an 80-meter (262 feet) hub height and a 101 meter (331.4 feet) rotor diameter. Each turbine begins operating at wind speeds of 4.0 meters per second (m/s), or 8.9 miles per hour (mph), and reaches its rated capacity (2.3 MW) at a wind speed of 12 to 13 m/s (26.8 to 29.0 mph).

8. Each turbine is designed to operate at wind speeds of up to 25 m/s (55.9 mph) and can withstand wind speeds of more than 55 m/s (123.0 mph).

9. Each tower will be secured by a concrete foundation that can vary in design depending on the soil conditions. A typical foundation extends seven to ten feet below grade where it spreads to a final diameter of 40 to 60 feet at the base. Turbine lighting will be limited to warning lights required by the Federal Aviation Administration. A control panel inside the base of each turbine tower houses communication and electronic circuitry. Each turbine is equipped with a wind speed and direction sensor that communicates to the turbine control system to signal when sufficient winds are present for operation. The turbine features variable-speed control and independent blade pitch to assure aerodynamic efficiency. Electricity generated by each turbine is brought to a pad-mounted transformer where the voltage is stepped up to a power collection line voltage of 34.5 kV. This electricity is collected by sets of underground power collection lines.

10. The 34.5 kV collector system transmits power to the project collector substation. At the project substation, the power will be transformed to 230 kV and transmitted via overhead 230 kV transmission lines, interconnecting with the transmission grid at the existing Square Butte Substation. Electrical energy is converted from AC to DC via a DC converter station within the Square Butte Substation. Electrical energy from the Bison I Wind Project will be transmitted to customers via the existing [Minnesota Power](#) ~~Square Butte~~ DC Line which extends from the Square Butte Substation to Minnesota Power's Arrowhead Substation located near Duluth, Minnesota.

11. Wind data was collected from four meteorological towers constructed in the project site area. Minnesota Power expects the project will have annual average wind speeds of 8 mps (equivalent to 17.8 mph) or higher, comparable to National Renewable Energy Laboratory wind power class ratings of 5 and 6, indicating an excellent to outstanding wind resource.

12. Construction of the Bison I Wind Project is expected to take approximately two years, at a total estimated construction cost of \$175 million.

13. Minnesota Power anticipates commencing construction on Phase 1A (16 wind turbines) in October, 2009, testing and operations by fall 2010, and commercial operation to begin in late 2010. Minnesota Power anticipates commencing construction on Phase 1B (~~47~~[15](#) wind turbines) in fall 2010, testing and operations and commercial operations to begin in fall 2011.



14. Safety factors will be incorporated into the wind turbines. Each turbine will be equipped with a Supervisory Control and Data Acquisitions (SCADA) communication technology to control and monitor the turbine. In addition, each turbine is equipped with a lightning protection system and is grounded and shielded to protect against lightning.

15. Construction and operation of the Bison I Wind Project will conform to requirements of the National Electric Safety Code.

#### Siting Criteria

16. North Dakota Administrative Code Chapter 69-06-08 sets forth certain criteria to guide the Commission in evaluating the suitability of granting an application for the certificate of site compatibility. The criteria set forth in North Dakota Administrative Code Section 69-06-08-01 are classified as Exclusion Areas, Avoidance Areas, Selection Criteria, and Policy Criteria. With the exception of prime and unique farm land, an energy conversion facility must not be sited within an Exclusion Area. The exception for prime and unique farm land is if the Commission finds that the prime farm and unique farm land that will be removed from use for the life of the facility is of such small acreage as to be of negligible impact on agricultural production, then such exclusion shall not apply. An energy conversion facility must not be sited within an Avoidance Area unless the applicant shows that under the circumstances there is no reasonable alternative. In determining whether an Avoidance Area should be designated for a facility, the Commission may consider, among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources, and alternate sites. In accordance with the Commission's Selection Criteria, an energy conversion facility shall be approved only if it is demonstrated that no significant adverse impacts will result from the location, construction, and operation of the facility. In accordance with the Commission's Policy Criteria, preference may be given to an applicant demonstrating certain benefits of the energy conversion facility.

17. Figure 15 of the Application labeled Prime Farmland Soil Distribution Map shows that approximately 33 percent of the site is prime farmland soils, most of it located in the southeast and northern portions of the site. The final layout will site only a limited number of turbines and facilities in prime farmlands. Even if all the turbines and access roads were placed within prime farmland areas, only approximately 41 acres of prime farmland would be impacted, or approximately one percent of prime farmland in the Project site. Unique and prime farmland to be disturbed by this energy conversion facility is of such small acreage as to be of negligible impact on agricultural production.

18. Approximately 50 acres of agricultural production will be impacted due to turbine placement, access roads, the operations and maintenance facility and project substation. Wind turbine configuration will not result in significant impacts to agricultural production. No impacts on the agricultural quality of the crop land are anticipated. If compaction of soils occurs during construction, Minnesota Power will work with landowners to alleviate the compaction.

19. Minnesota Power submitted evidence to demonstrate that the proposed energy conversion facility would not have significant impact on the Selection Criteria set forth in North Dakota Administrative Code section 69-06-08-01(3).

20. Minnesota Power submitted evidence to demonstrate its commitment to maximize the benefits of the proposed energy conversion facility as far as is possible so as to meet the Policy Criteria set forth in North Dakota Administrative Code Section 69-06-08-01(4).

21. No significant adverse impact is foreseen on the ability of the affected area to provide community services, such as housing, health care, schools, police and fire protection, water and sewer, solid waste management, transportation, or public safety. The proposed project is expected to be of economic benefit to the affected area.

22. The only Avoidance Areas identified within the project area are cultural resource sites and wetlands. The proposed road accessing turbine 32 along the west edge of section 4, Township 140 N, Range 86 W, will result in a quarter-acre fill of a jurisdictional wetland in the Sweet Briar Creek watershed. The impact will occur within the 66'-wide statutory easement along the section line; this low-quality wetland habitat is already partially impacted by an existing two-track agricultural road. The impact of Minnesota Power's road improvements upon the wetland resource will be negligible. Minnesota Power has chosen to utilize section line easements when practical, in order to minimize impact to agricultural production. Minnesota Power will obtain appropriate permits from the United States Army Corps of Engineers (USACE) as necessary for any jurisdictional wetlands impacted.

23. According to North Dakota Geological Survey data provided by the applicant, underground lignite coal reserves have been identified near the project area, but none identified within the project area.

#### Cultural Resources:

24. With respect to historical resources that are not designated as Exclusion Areas, Minnesota Power has consulted the North Dakota State Historic Preservation Office (SHPO). Class I and Class III Cultural Resource Inventories, including review of SHPO's site and managed files, were conducted by HDR Engineering, Inc. of Minneapolis, Minnesota, for the project area. During the course of the inventory to date, four previously-recorded archaeological sites and six previously-recorded site leads were identified within the data gathering area. None of these sites or site leads will be impacted by the project. To date, two new archaeological resource sites were identified within the project area. One is a lithic scatter and the other is a prehistoric scatter with associated cairn and two depressions. These sites will be avoided by project construction. To date, SHPO has concurred with the "No Historic Properties Affected" and "No Significant Site Affected" determinations for this project. HDR Engineering will be conducting an additional survey due to the revised location of a few of the project facilities. A recommendation will be forwarded to SHPO for review, and seeking

concurrence from SHPO. [On November 8, 2010, Minnesota Power submitted an additional Class III Cultural Resource Inventory for the proposed revised location of wind turbine location No. 30, which revealed no cultural resources. The additional report was submitted to SHPO for its review.](#)

Wetlands and Wildlife:

25. Minnesota Power has consulted with numerous local, state, and federal agencies, which are identified in Appendix C of the Application, and Appendix C of the August 18, 2009 Supplement. Two agencies providing significant input were the North Dakota Game and Fish Department and the United States Fish and Wildlife Service (USFWS). Neither agency has objected to construction of the project.

26. The North Dakota Game and Fish Department indicated its primary concern is with disturbance of native prairie and wetlands. Minnesota Power met with North Dakota Game and Fish Department to discuss the project area and plans to mitigate any impacts. The disturbance of native prairie and wetlands will be minimal.

27. Concerns of the USFWS focused on migratory birds, wetlands, native grasslands, and threatened and endangered species. Minnesota Power will implement measures to avoid and minimize effects to wildlife at the proposed site by locating facilities away from habitat and wetlands when possible.

28. At the request of USFWS, Minnesota Power is developing an Avian and Bat Protection Plan (ABPP) that will be implemented during construction and for post-construction monitoring. The ABPP will include protocols for field technicians to report and document avian mortalities during routine maintenance operations.

29. The whooping crane is a federally endangered species that may use the project area during their spring and fall migration. The project occurs outside of the central migration corridor flyway where 50 percent of confirmed whooping crane sighting in North Dakota have occurred, but within an 80 mile corridor where 75 percent of sitings have occurred. Impacts thought to occur primarily from the loss of stopover habitat will be minimal as only 50 acres (1% of the project area) will be permanently disturbed.

30. Mr. Terry Ellsworth, a fish and wildlife biologist with the USFWS, Ecological Services Division, Bismarck, North Dakota, testified that the USFWS has been providing technical assistance to Minnesota Power on the proposed Bison 1 wind project. Minnesota Power has committed to marking all new transmission lines associated with the Bison I Wind Project within the whooping crane corridor with bird flight diverters. Minnesota Power will also mark an equal length of existing and previously unmarked transmission lines within the corridor. Minnesota Power is also participating in the development of a whooping crane Habitat Conservation Plan. Mr. Ellsworth commended Minnesota Power for its willingness to work with the Service to avoid, reduce, and mitigate potential wildlife impacts that may result from construction and operation of the Bison 1 Project.

31. A wetland delineation was conducted for the Bison I Wind Project and the results were submitted to the Commission. Wetlands will be avoided to the extent practicable during the construction phase of the project. If impacts to Clean Water Act jurisdictional waters are unavoidable and less than one-half acre, Minnesota Power will seek project authorization under a Section 404 USACE Nationwide Permit (NWP) application. Permanent impacts to jurisdictional waters will be mitigated according to USACE requirements.

### Mitigative Measures

32. Morton County has established setbacks for wind turbine towers from property boundaries, road right-of-ways (ROW), and occupied residences. Each wind turbine must be no less than 1.25 times its total height, or 1,320 feet (whichever is greater) from the nearest occupied dwelling, commercial building or publicly-used structure or facility, and state and county parks. From public road and above ground transmission lines, turbines must be located no less than 250 feet from the center line of the existing ROW. And from the wind energy facility perimeter, each turbine must be set back no less than 1.0 to 1.5 times its rotor diameter. Oliver County has not established setback requirements for wind turbines.

33. No turbines will be placed within 1,500 feet of an occupied residence. Average noise levels at such residences should not exceed 50 decibels (dB).

34. No turbines will be placed within 300 feet of the center line of existing public road ROW or within 1.1 times turbine height (from base to blade tip) of an above-ground electric transmission line.

35. Minnesota Power will maintain ground water protection and soil conservation practices to protect topsoil and adjacent resources, and to minimize soil erosion during construction and operation of the project. Best management practices (BMPs) for erosion and sediment control will be used to minimize wind and water erosion in the project area during and after construction. Only land needed for the facility will be impacted. Temporarily disturbed areas will be restored.

36. Minnesota Power has a legal obligation to decommission the wind energy facilities.

37. Minnesota Power made other representations and agreements as contained in the Certification Relating to Order Provisions – Wind Energy Conversion Facility Siting executed by Minnesota Power and filed with the Commission on August 12, 2009, which is incorporated in these Findings of Fact. The Commission accepts Minnesota Power's modification to Paragraph 17 that it shall bury all underground collection and feeder lines to a depth of at least 42 inches to the top of the lines.

From the foregoing Findings of Fact, the Commission now makes its:

## Conclusions of Law

1. The Commission has jurisdiction over this proceeding under North Dakota Century Code Chapter 49-22.
2. The energy conversion facility proposed by Minnesota Power is an energy conversion facility site as defined in North Dakota Century Code section 49-22-03(11).
3. The Application submitted by Minnesota Power meets the site evaluation criteria required by North Dakota Century Code chapter 49-22.
4. The location, construction, and operation of the proposed energy conversion facility will produce only minimal adverse effects on the environment and upon the welfare of the citizens of North Dakota.
5. The proposed energy conversion facility is compatible with environmental preservation and the efficient use of resources.
6. The proposed energy conversion facility will minimize adverse human and environmental impact while ensuring continuing system reliability and integrity and ensuring that energy needs are met and fulfilled in an orderly and timely fashion.
7. The Commission has jurisdiction to ensure compliance with National Electric Safety Code standards in the construction and operation of the proposed energy conversion facility.
8. The proposed project is of such design, location and purpose that it will produce minimal adverse effects

From the foregoing Findings of Fact and Conclusions of Law, the Commission now make its:

## Order

The Commission orders:

1. Certificate of Site Compatibility for an Energy Conversion Facility No. 15 is [amended and reissued](#) to Minnesota Power for the construction, operation, and maintenance of a wind energy facility known as Bison I Wind Project [in accordance with this Order](#).
2. The site as designated in the Application is located in Morton and Oliver counties, North Dakota, approximately 10 miles north and northwest of New Salem, North Dakota, and is designated as the site for construction of the energy conversion facility.

3. Minnesota Power is authorized to site and construct up to ~~81.8~~<sup>75.9</sup> MW of wind turbines in proposed and alternate locations, along with electric collection and communication lines, a project substation, an operations and maintenance building, meteorological towers, access roads and other associated facilities identified in the application and at the August 25, 2009 public hearing and Minnesota Power's November 8, 2010 filing.

4. Minnesota Power shall comply with the rules and regulations of all other agencies having jurisdiction over any phase of the proposed project, including all city, township, and county zoning regulations.

5. Minnesota Power shall obtain all other necessary approvals and permits, including concurrence from the State Historic Preservation Office, and provide copies to the Commission prior to any construction activity associated with the energy conversion facility that requires said concurrence, license or permit.

6. Minnesota Power shall conduct a pre-construction conference prior to the commencement of any construction, and must include a Minnesota Power representative, its construction supervisor, and a representative of the Commission staff to ensure that Minnesota Power fully understands the conditions set forth in this Order.

7. Minnesota Power shall inform the Commission of its intent to start construction on the energy conversion facility prior to the commencement of construction, and while construction is underway, Minnesota Power shall keep the Commission updated of construction activities on a weekly basis.

8. Minnesota Power shall construct and operate the energy conversion facility in the manner described in its application, at the hearing, in the late-filed exhibit, and in accordance with all applicable safety requirements.

9. Minnesota Power shall construct the energy conversion facility in compliance with the National Electric Safety Code.

10. Minnesota Power shall report to the Commission the presence in the permit area of any critical habitat of threatened or endangered species that Minnesota Power becomes aware of and were not previously reported to the Commission.

11. If any cultural resources, paleontological resources, archeological site, historical resource, or grave site is discovered during construction of the facility, earth disturbing activities in the immediate vicinity of this discovery must be halted. The resource must be marked, preserved, and protected from further disturbance until a professional examination can be made in consultation with the North Dakota SHPO. A report of such examination must be filed with the Commission, and clearance to proceed must be given by the SHPO and the Commission.



12. All pre-existing township and county roads and lanes used during construction must be restored to a condition that will accommodate their previous use, and areas used as temporary roads during construction must be restored to their original condition except as authorized by Morton and Oliver counties.
13. Construction must be suspended when weather conditions are such that construction activities will cause irreparable damage, unless adequate protection measures approved by the Commission are taken.
14. Reclamation, fertilization, and reseeding will be completed by Minnesota Power according to the Natural Resource Conservation Service recommendations, unless otherwise specified by the landowner and approved by the Commission.
15. Minnesota Power's obligations for reclamation and maintenance of the site shall continue throughout the life of the energy conversion facility.
16. When the energy conversion facility is retired, structures and other facilities must be removed in accordance with applicable rules and the areas restored to as near as original condition as is practicable.
17. Minnesota Power shall comply with the Commission's Tree and Shrub Mitigation Specifications attached to this Order.
18. Minnesota Power shall repair or replace all fences and gates removed or damaged during all phases of construction and operation of the proposed energy conversion facility.
19. Minnesota Power shall repair or replace all drainage tile, broken or damaged, during all phases of construction and operation of the proposed energy conversion facility.
20. Staging areas or equipment must not be located on cultivated land unless otherwise negotiated with landowners.
21. Minnesota Power shall remove all waste that is a product of construction and operation, restoration and maintenance of the site, and properly dispose of it on a regular basis.
22. Minnesota Power shall, as soon as practicable, upon the completion of the construction of each wind turbine, restore the area affected by the activities to as near as is practicable to the condition as it existed prior to the beginning of construction.
23. Minnesota Power shall provide, if requested, educational material for landowners within the site boundaries about the proposed energy conversion facility, and any restriction of possible danger concerning the proposed energy conversion facility.

24. Minnesota Power shall provide any necessary safety measures for traffic control or to restrict public access to the energy conversion facility.
25. Minnesota Power shall advise the Commission of any extraordinary events that take place at the site of the energy conversion facility, such as tower collapse, extensive turbine failure, injured worker or private individual, mortality events of any threatened or endangered species, or the discovery of a large number of dead birds or bats on the site within five business days of such event.
26. Minnesota Power shall implement a procedure for how complaints concerning the proposed energy conversion facility will be handled by Minnesota Power.
27. All underground electric line crossing of graded roads must be bored unless the responsible governing agency permits Minnesota Power to open cut the road.
28. Where available, at least 12 inches of topsoil over and along open cut areas, roadways, tower locations, and locations of associated facilities must be stripped and segregated from the subsoil and be replaced only after the subsoil is replaced.
29. Minnesota Power shall work with landowners and residents in the area to mitigate any increase in television and residential radio interference that results from the construction of the energy conversion facility.
30. Minnesota Power shall provide the Commission with engineering design drawings showing surveyed structure and collection substation locations prior to construction, and shall obtain approval from the Commission or from Commission staff prior to any changes in those surveyed locations.
31. Minnesota Power shall provide the Commission with as-built engineering design drawings and an electronic version of the as-built drawings that can be imported into ESRI GIS mapping software within six months after construction of the energy conversion facility is complete.
32. The Certificate of Site Compatibility is subject to suspension or revocation and may, in an appropriate and proper case, be suspended or revoked for failure to comply with the Commission's Order, the conditions and criteria of each Certificate or subsequent modification, or failure to comply with the applicable statutes, rules, regulations, standards, and permits of other state or federal agencies.
33. Minnesota Power shall maintain records that will demonstrate that it has complied with the requirements of this Order and each Certificate of Site Compatibility, and that it will preserve these records for Commission inspection at any reasonable time upon reasonable notice.
34. When the facility is at the end of its useful life Minnesota Power will remove turbine structures and decommission the project area in accordance with all



decommissioning rules adopted by the Commission and as delineated under North Dakota Century Code section 49-02-27.

35. The authorizations granted by each Certificate of Site Compatibility for this energy conversion facility are subject to modification by order of the Commission if deemed necessary to further protect the public or the environment.

### **PUBLIC SERVICE COMMISSION**

---

**Tony Clark  
Commissioner**

---

**Kevin Cramer  
Chairman**

---

**Brian P. Kalk  
Commissioner**

STATE OF MINNESOTA

COUNTY OF ST. LOUIS

---

Bison 1 Wind Project  
Oliver/Morton Counties  
Siting Application

Case Number: PU-09-151

**AFFIDAVIT OF JAMES ATKINSON**

---

I, James Atkinson, being first duly sworn under oath, state the following:

1. The information contained in this request to modify the Certificate of Site Compatibility for Energy Conversion Facility No. 15 (“Certificate”) dated September 29, 2009 in the above-referenced Docket is true and is based upon my knowledge.
2. I am employed by Minnesota Power, 30 West Superior Street, Duluth, MN, 55802, as a Supervisor, Environmental Siting and Permitting.
3. I am responsible for the siting and permitting of Minnesota Power’s critical infrastructure additions such as high voltage transmission lines, substations and new electric generation sources like the Bison I wind energy conversion facility.
4. I previously provided testimony to the North Dakota Public Service Commission (“Commission”) at the August 25, 2009 public hearing in New Salem, North Dakota. I also provided testimony to the Commission at the February 1, 2010 public hearing in the related transmission line proceeding in Case No. PU-09-587.
5. The purpose of my Affidavit is to provide evidence and support regarding Minnesota Power’s request to modify its Certificate for its Bison 1 Wind Project in Oliver and Morton counties.
6. The Commission certified Minnesota Power’s project “consisting of up to 33 2.3 MW wind turbine generators and associated facilities in Morton and Oliver Counties of North Dakota.”
7. Minnesota Power is requesting two modifications to the Certificate: (1) move one wind turbine generator (No. 30) approximately 215 feet to the east-southeast to reduce wake effect from another wind turbine generator; and (2) authority to utilize Siemens direct drive turbine technology for Phase 1B with 3.0MW wind turbine generators and a

resulting increase in overall total generating capacity to 81.8MW and a decrease by two in the total number of turbines to 31.

8. Attached to this Affidavit is a Bison 1 site layout map to be utilized in any required newspaper notification. A version of this map were previously provided to the Commission in conjunction with the original August 25, 2009 public hearing.
9. Bison 1 originally consisted of 33, 2.3MW, wind turbine generators, a 34.5kV underground collector system, a 34.5 to 230kV substation, an operations and maintenance building and about 14 miles of access roads, all together occupying just 47 of the 9,543 acres within the site perimeter.
10. Minnesota Power commenced construction in October 2009 and has been providing weekly construction updates to the Commission as required by the September 29, 2009 Findings of Fact, Conclusions of Law and Order (“Order”). As part of Phase 1A of the project, Minnesota Power is in the process of energizing 16 2.3 MW Siemens turbines. Minnesota Power has been evaluating the potential benefits of installing newer, larger capacity wind turbine generators for its second phase of Bison 1, (Phase 1B) scheduled to be in service by December of 2011.
11. Minnesota Power’s rationale for deploying this technology is outlined below. Additional information is provided in the documents attached to this Affidavit.
12. Equipment: The new turbine type is Siemens model SWT-3.0-101 which features a direct drive generator and no gear box, eliminating about half of the total parts in the turbine. The new turbine is anticipated to deliver up to 20% more energy per turbine through the higher capacity and improved efficiency while weighing about 10 tons less than the SWT-2.3-101 turbines being deployed on the first phase of Bison 1 (Phase 1A).
13. The new turbines are deployed on the same 80 meter towers and are fitted with the same 101 meter diameter rotor hub-blade assembly. The new turbines may require slightly larger foundations. Though final engineering is not yet complete, estimates indicate an increase in foundation diameter of up to one foot. This technology change will not impact any exclusion or avoidance areas as defined under North Dakota law.
14. Attached to this Affidavit is a true and correct copy of Siemens’ information sheet for the model SWT-3.0-101.
15. Project Layout: The main effect of utilizing the new turbine technology on project layout would be a decrease by two in the total number of turbines. If approved by the Commission, this modification would result in a total build out for Bison 1 of 31 turbines

(16 SWT-2.3-101 and 15 SWT-3.0-101) and a total generating capacity of 81.8MW. Previously the total generating capacity was 75.9MW. With the elimination of two turbines comes a reduction in the total length of access roads (approximately one less mile) and underground collector system (approximately two less miles).

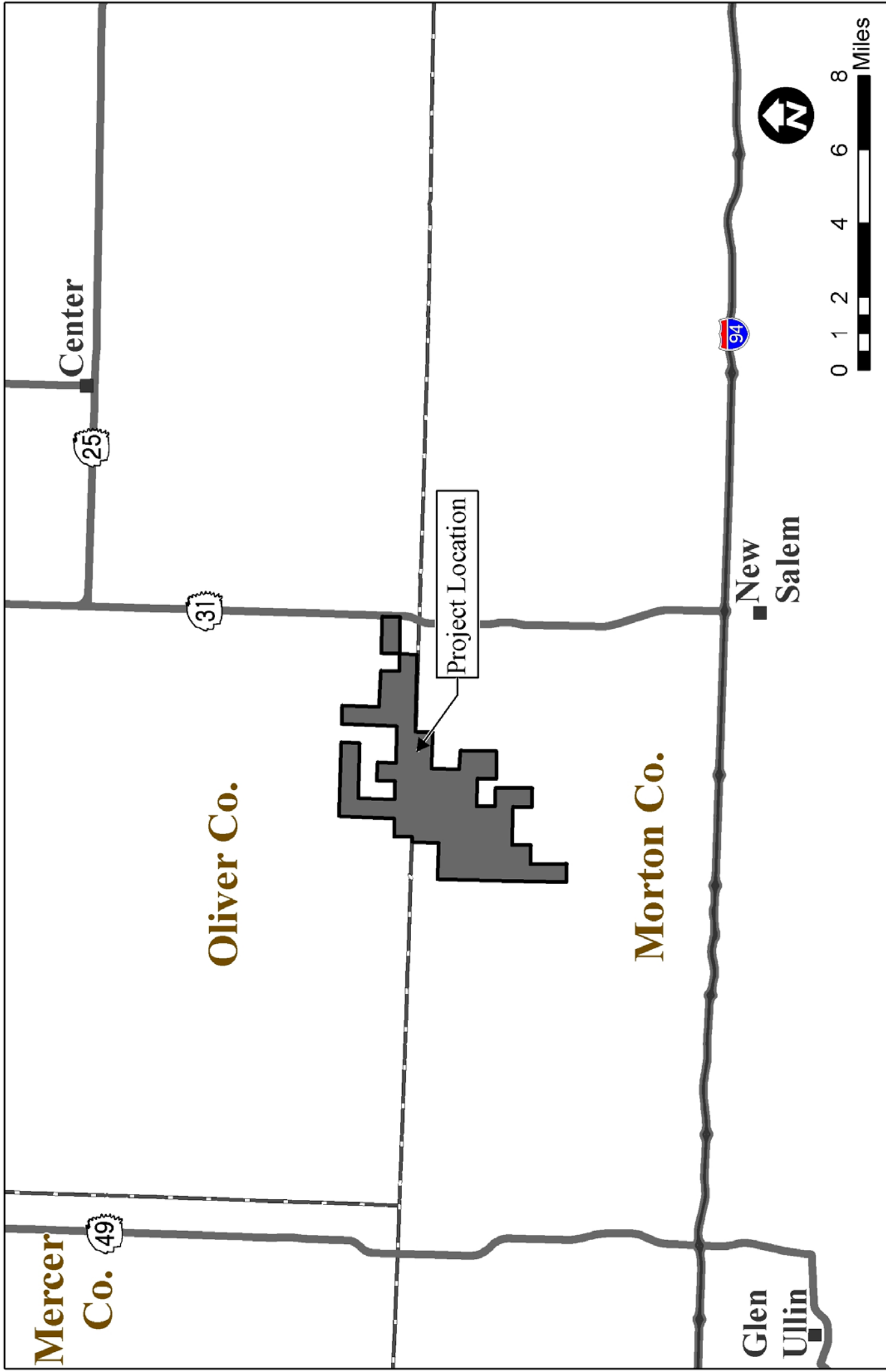
16. In addition to the turbine change, Minnesota Power is requesting Commission approval to move wind turbine generator No. 30 approximately 215 feet to the east-southeast. Minnesota Power has conducted further performance modeling and determined that moving wind turbine generator No. 30 will reduce wake effect from wind turbine generator No. 2. This turbine location change will not impact any exclusion or avoidance areas as defined under North Dakota law.
17. Attached to this Affidavit is a true and correct copy of the updated Cultural Resources Survey for the one turbine location change.
18. Attached to this Affidavit is a true and correct copy of the revised turbine layout that represents the new location for wind turbine generator No. 30 and the overall project layout with the reduced footprint.
19. Shadow Flicker: The elimination of two turbines from the project layout will result in a decrease in shadow flicker exposure at certain sensitive receptors. The shadow flicker produced by 14 of the remaining turbines would not change as a result of this amendment because the new turbines utilize the same towers, tower locations and rotor hub-blade assemblies.
20. Noise Levels: As measured 10 meters above ground level at the turbine location with an eight meter per second wind speed, the SWT-3.0-101 turbine is expected to produce a sound power level of 108 decibels, half a decibel less than the sound power level used in modeling presented in Section 7.6.2 of Minnesota Power's original site permit application submitted to the Commission in May 2009. As a result, the original modeling remains valid for the new turbine because a change of at least 3 decibels is necessary for human perception.

DATED this \_\_\_\_\_ day of \_\_\_\_\_, 2010.

By: \_\_\_\_\_  
JAMES ATKINSON

Subscribed and sworn to before me  
this 8<sup>th</sup> day of November 2010.

\_\_\_\_\_  
Notary Public



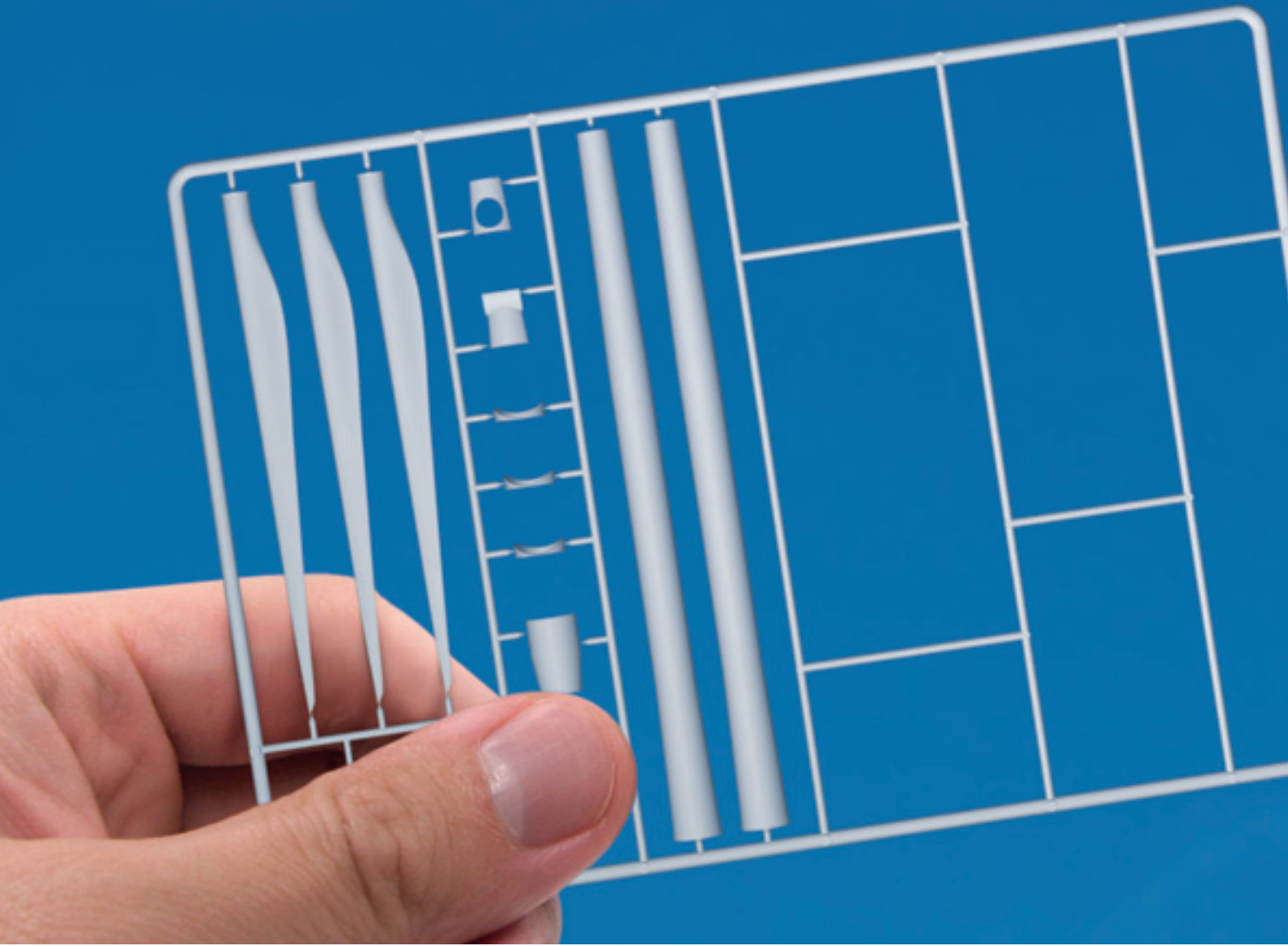


# Bright outlook for improved profitability

Direct drive wind turbine SWT-3.0-101

Answers for energy.

**SIEMENS**



How can you gain maximum performance  
with 50 percent fewer parts?





As wind power plants develop capacities similar to conventional power plants, power generation companies throughout the world are striving for greater efficiency and cost-effectiveness.

Siemens' solution: increase availability and profitability through innovative technology.

The SWT-3.0-101 wind turbine from Siemens offers innovation through a completely new generator. With half the parts of a conventional geared turbine, and much less than half the number of moving parts, the new wind turbine is easy to maintain and extremely reliable. The compact design allows for cost-effective transportation on standard vehicles within most markets.



Fewer components, increased profitability! What once was only a dream is now ready for serial production. Comprehensive testing has shown that the new direct drive wind turbine is a reliable investment in the future of power generation.

Henrik Stiesdal,  
CTO, Siemens Wind Power

## Performance and profitability go hand in hand

In designing a wind turbine, a holistic view of the design and construction, materials, processes, manufacture, and installation is critical. With the SWT-3.0-101, Siemens started with the ambitious aim of reducing the number of components by half, while increasing performance. Thanks to innovative engineering, that vision is now a reality.

The gearless SWT-3.0-101 carefully balances all these factors in a compact system that has the potential to significantly lower maintenance costs and service time.

### Reduced complexity

Regardless of how reliable Siemens' wind turbine gearboxes have been in the past, the gearbox is always the most complex component of a wind turbine. Eliminating the gearbox reduces complexity and increases reliability.

Siemens has opted for a permanent magnet generator for improved efficiency. Unlike an electrically excited machine with a gearbox, a permanent magnet excited machine does not expend any energy on the excitation itself. The SWT-3.0-101 also has an outer rotor, where the rotor spins on the outside of the stator. This design feature allows the rotor to operate within narrower tolerances, which aids in keeping the dimensions of the nacelle compact.



### **Simplified design**

Despite the compact design, Siemens has actually given service technicians more space in which to operate. The drastic reduction of parts has created a relatively spacious environment within the nacelle, where key components are readily accessible. The “plug and play” nature of components allows most components to be interchanged without impacting other components.

The top-mounted, passive cooling system improves energy efficiency. The SWT-3.0-101 has a dual cooling system that provides an even cooling of the generator. The coolant life expectancy is also increased, aiding both reliability and performance.

Of the five key components in a wind turbine – the blade, rotor hub, nacelle, tower, and controller – all but the nacelle are adopted from the existing Siemens’ portfolio. By utilizing proven components, Siemens has endeavored to eliminate many of the variables traditionally associated with the introduction of such an innovative product.

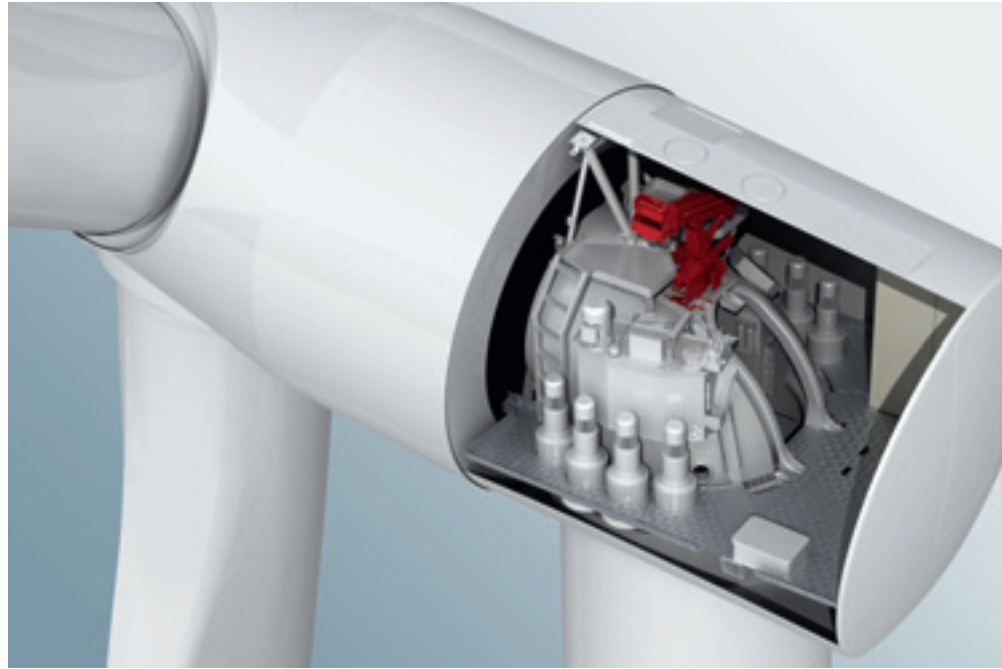
### **Ease of transportation and erection**

The nacelle has a length of 6.8 meters and a diameter of 4.2 meters. Weighing 73 tons, the SWT-3.0-101 machine is “light” enough to be carried on trucks commonly available in most major markets.

The dimensions of the new wind turbine allow for greater flexibility in road transportation. Key bridge and tunnel clearance specifications have been carefully considered when engineering the machine, and as a result, the 3.0 MW wind turbine can navigate many of the most demanding transport routes.

One clear advantage of the new nacelle’s size is that the nacelle is transported in one piece to minimize expensive and risky on-site assembly of critical components.

The compact system design, with a reduced number of rotating wear parts, is an ideal basis for profitable deployment onshore, offshore, and in coastal areas.



## A new definition of competence: fully developed technology, advanced design

### **Grid performance with NetConverter®**

Grid stability requirements grow as more wind power is fed into the grid, and Siemens sets the standard in the field of grid compliance.

Power conversion is implemented by the Siemens' NetConverter® system. This system is characterized by full conversion of the power generated, efficiently decoupling generator and turbine dynamics from the grid. The NetConverter® system can offer maximum flexibility in the turbine response to voltage and frequency

control, fault ride-through, and output adjustment. As a result, Siemens wind turbines can be configured to comply with a variety of relevant grid codes in major markets and can be readily connected to the grid.

### **Siemens IntegralBlade®**

The rotors of the SWT-3.0-101 are manufactured using patented IntegralBlade® technology. The blades are made in one piece from fiberglass-reinforced epoxy resin in a single production step. As a result, there are

no glue joints, which helps minimize the risk of environmental effects on the blade.

### **Efficient lightning protection**

The SWT-3.0-101 has efficient lightning protection. Its overall basic construction is based on the international standard IEC 61400-24 Lightning Protection Level I.



Key features at a glance	Technical data	
<ul style="list-style-type: none"><li>• New drive train design with permanent magnet generator is a technological leap forward</li><li>• Simple design with less moving parts reduces complexity and need for maintenance</li><li>• The compact and lightweight design is a major advantage for transportation and installation</li></ul>	IEC Class	IA
	Rotor diameter	101 m
	Blade length	49 m
	Swept area	8,000 m <sup>2</sup>
	Hub height	80 m
	Power regulation	pitch regulated
	Annual output at 8 m/s	11,600 MWh
	Blade weight	10.3 t
	Nacelle weight	73 t
	80–100 m tower weight	162 t



Published by and copyright © 2010:  
Siemens AG  
Energy Sector  
Freyeslebenstrasse 1  
91058 Erlangen, Germany

Siemens Wind Power A/S  
Borupvej 16  
7330 Brande, Denmark  
[www.siemens.com/wind](http://www.siemens.com/wind)

For more information, please contact  
our Customer Support Center.  
Phone: +49 180 524 70 00  
Fax: +49 180 524 24 71  
(Charges depending on provider)  
E-mail: [support.energy@siemens.com](mailto:support.energy@siemens.com)

Renewable Energy Division  
Order No. E50001-W310-A161-X-4A00  
Printed in Germany  
Dispo 34804, c4bs No. 7491  
fb 2917 WS 04105.

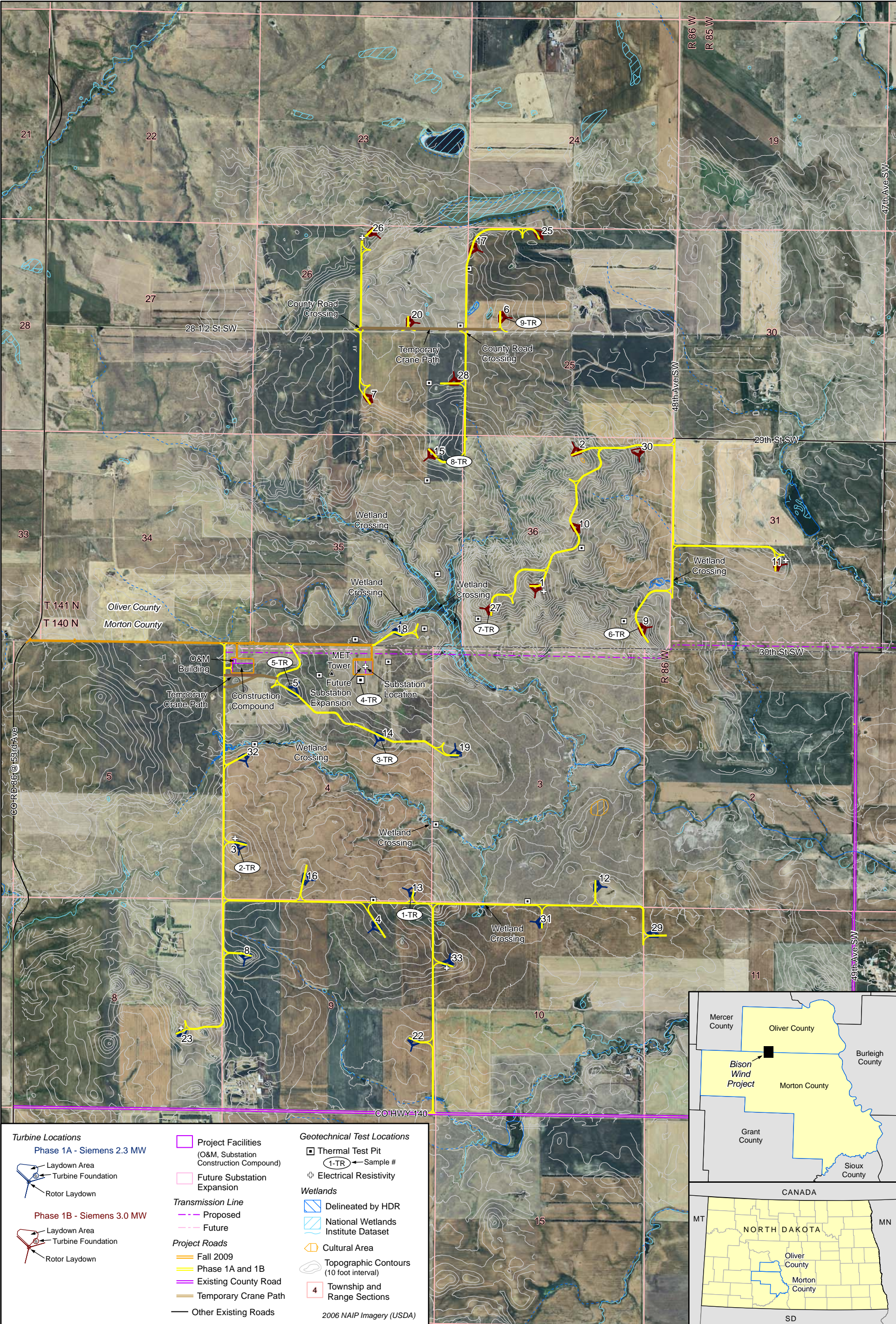
Printed on elementary chlorine-free  
bleached paper.

All rights reserved.  
Trademarks mentioned in this document  
are the property of Siemens AG, its affiliates,  
or their respective owners.

Subject to change without prior notice.  
The information in this document contains  
general descriptions of the technical options  
available, which may not apply in all cases.  
The required technical options should therefore  
be specified in the contract.



October 14, 2010



**Turbine Locations**

**Phase 1A - Siemens 2.3 MW**

- Laydown Area
- Turbine Foundation
- Rotor Laydown

**Phase 1B - Siemens 3.0 MW**

- Laydown Area
- Turbine Foundation
- Rotor Laydown

**Project Facilities**

- O&M Building
- Construction Compound
- Future Substation Expansion

**Transmission Line**

- Proposed
- Future

**Project Roads**

- Fall 2009
- Phase 1A and 1B
- Existing County Road
- Temporary Crane Path
- Other Existing Roads

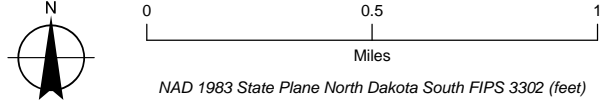
**Geotechnical Test Locations**

- Thermal Test Pit (1-TR) Sample #
- Electrical Resistivity

**Wetlands**

- Delineated by HDR
- National Wetlands Institute Dataset
- Cultural Area
- Topographic Contours (10 foot interval)
- Township and Range Sections

2006 NAIP Imagery (USDA)



Minnesota Power - Bison Wind Project  
Project Facilities Layout  
Morton and Oliver Counties, North Dakota



# Bison Wind Alternate Turbine Location:

A Class III Cultural Resource Inventory in Oliver County, North Dakota

---

**Prepared for: Allete  
Duluth, MN**

**Prepared by: Gwen Jakel and Wade Burns**



**Beaver Creek Archaeology, Inc.  
Mandan, North Dakota**

**November, 2010**



## Manuscript Date Record Form

1. Manuscript Number:
2. SHPO Reference #:
3. Author(s) (List all authors names as they appear on the report title page): **Gwen Jakel and Wade Burns**
4. Title (Complete title as it appears on the report title page): **Bison Wind Alternate Turbine Location: A Class III Cultural Resource Inventory in Oliver County, North Dakota.**
5. Report Date (As is appears on the report title page): **November, 2010**
6. Number of Pages (Including front matter, references cited and appendices): **5**
7. Type – I = Inventory (Class 3 CRI), T – Test, E= Excavation, O = Other: **Type I**
8. Acres – Class 3 inventory only; project description specified only in report: **19**
9. Legal Location(s) (no quarter sections) with Historic Context Study Unit(s): Consult township tables in The North Dakota Comprehensive Plan for Historic Preservation: Archaeological Component, (SHSND 1990) for Study Unit Assignments. Study Units: LM, CB, KN, HE, SM, GA, JA, GR, NR, SR, SO, SH, YE

COUNTY	TWP	R	SEC	SU
Oliver	141	86	36	KN

**Negative Survey Report**  
Submitted by Beaver Creek Archaeology, Inc.  
301 1<sup>st</sup> Street NE Suite 201 Mandan, North Dakota 58554  
Phone: (701) 663-5521; e-mail: [info@bcarch.org](mailto:info@bcarch.org)

**Report Title:** Bison Wind Alternate Turbine Location: A Class III Cultural Resource Inventory in Oliver County, North Dakota.

**Author:** Gwen Jakel and Wade Burns

**Report Date:** November, 2010

**Acreage:** 19

**Land Status:** Private Land

**Survey Date:** November 4, 2010

**Project Sponsor:** Allele

**Historic Context:** Knife River Study Unit (#3)

**Legal Description/Location of Project Area:** The proposed project is located in the NE ¼ NE ¼ of Section 36 in T141N R86W Oliver County, North Dakota as depicted on the USGS 7.5' Bluegrass quadrangle map. The proposed project is located on Private Land.

**Description of Proposed Project:** The proposed project consists of an alternate turbine location for Allele. The Area of Potential Effect (APE) consists of a 19 acre block survey. Beaver Creek Archaeology inventoried a total of 19 acres for cultural resources.

**Result of File Search:** Gwen Jakel conducted a literature search at the North Dakota State Historic Preservation Office (NDSHPO) on November 3, 2010. The search revealed no site(s), no site lead(s), no isolated find(s) within a one mile radius and no Manuscript(s) on file within Section(s) 36 of the APE.

**Field Personnel:** Wade Burns (PI) and Christina Burns.

**Field Methods:** The proposed project area was inventoried on November 4, 2010 by Beaver Creek Archaeology. Weather conditions were good with sunny skies and approximately 50 °F. The alternate turbine location was inventoried by the archaeologist(s) walking parallel pedestrian

### Negative Survey Report

Submitted by Beaver Creek Archaeology, Inc.  
301 1<sup>st</sup> Street NE Suite 201 Mandan, North Dakota 58554  
Phone: (701) 663-5521; e-mail: [info@bcarch.org](mailto:info@bcarch.org)

transects 15 - 20 meters apart to cover the 19 acre APE. During the survey, field notes and overview pictures were taken.

The APE is located within the Knife River Study Unit (#3) as found in the *North Dakota Comprehensive Plan for Historic Preservation: Archaeological Component*. The 19 acre APE is located within a harvested wheat field and range land. The rangeland shows evidence of being plowed at some point in its past and field clearing piles were observed during the survey. Vegetation in the area consists of native and non-native grasses, plants and forbes within the range land and wheat stubble in the harvested field. Ground Surface Visibility (GSV) was approximately 35 % on average within the range land and up to 80% within the harvested field. Areas of higher visibility, such as erosion features, areas of sparse vegetation and rodent burrows were closely examined for cultural material.

**Results and Recommendations:** The investigation of the APE revealed no cultural resources. No previously recorded sites are in Section 36 or the adjoining sections. Consequently, *No Historic Properties Affected* is recommended and therefore, no further archaeological investigation is needed for the APE as mapped, photographed and described herein.

## Negative Survey Report

Submitted by Beaver Creek Archaeology, Inc.  
301 1<sup>st</sup> Street NE Suite 201 Mandan, North Dakota 58554  
Phone: (701) 663-5521; e-mail: [info@bcarch.org](mailto:info@bcarch.org)



**Figure 1:** Overview of the APE. View to the Northeast.

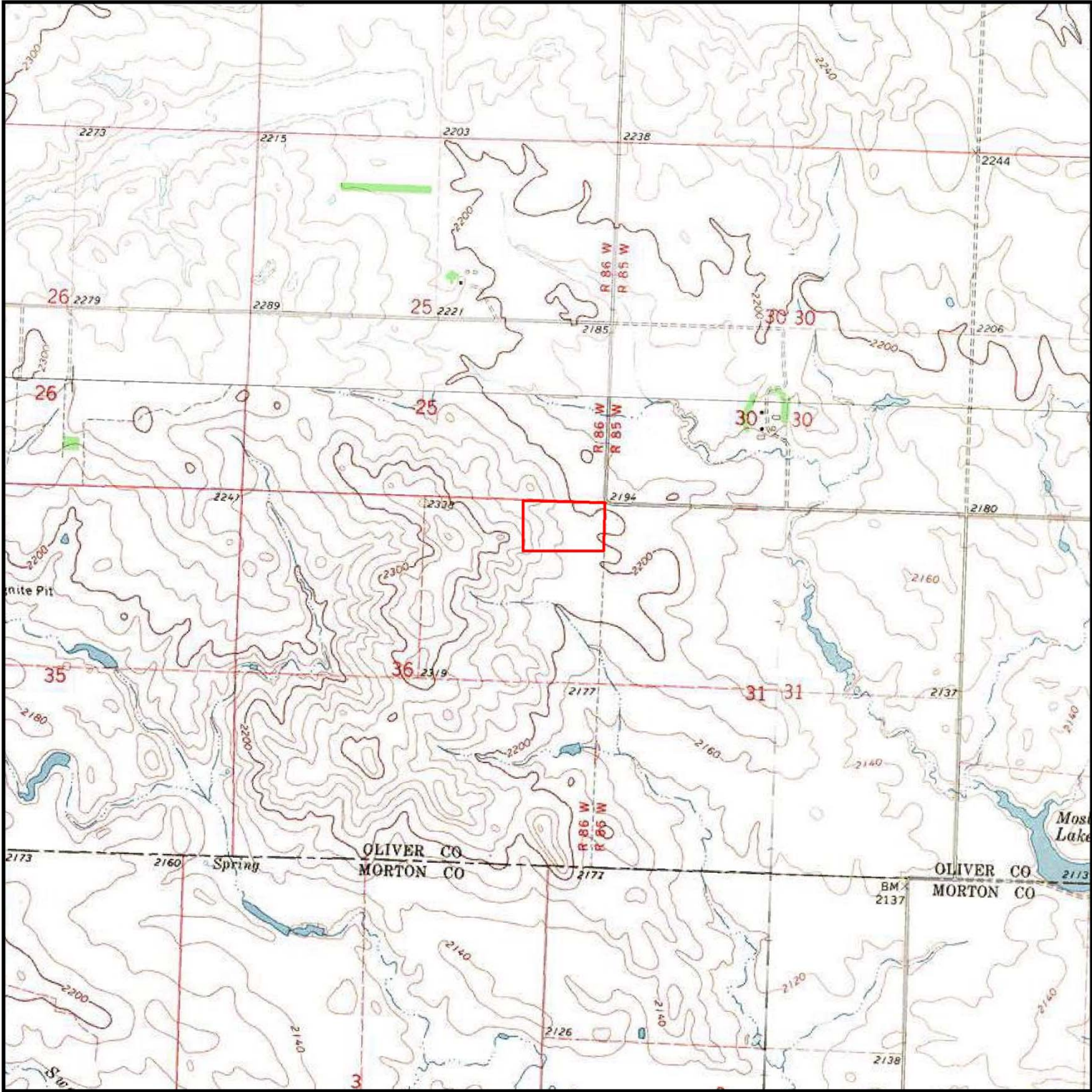


**Figure 2:** Overview of the APE. View to the Southwest.




Bison Wind Alternate Turbine Location Class III Cultural Resources Inventory

T141N R86W Section 36, Bluegrass Quad., Oliver County, North Dakota



Legend

 APE Boundary

0 0.25 0.5 0.75 1 Miles

0 0.25 0.5 0.75 1 Kilometers

Base Map: USGS 7.5'  
Scale: 1:24,000  
UTM NAD83 Zone 13



**STATE OF NORTH DAKOTA**  
**PUBLIC SERVICE COMMISSION**

ALLETE, Inc.  
Bison 1 Wind Project – Oliver/Morton Counties  
Siting Application

Case No. PU-09-151

**AFFIDAVIT OF SERVICE BY U.S. MAIL**

STATE OF MINNESOTA  
COUNTY OF ST. LOUIS

Kristie Lindstrom deposes and says that:

she is over the age of 18 years and not a party to this action, and on the 8<sup>th</sup> day of November, 2010, she deposited in the United States Mail, Duluth, Minnesota, one envelope postage prepaid, securely sealed and containing:

Minnesota Power's Request to Modify Certificate of Site Compatibility in  
Case No. PU-09-151

The envelope was addressed as follows:

Mr. Darrell Nitschke  
Executive Secretary  
North Dakota Public Service Commission  
600 E. Boulevard Ave., Dept. 408  
Bismarck, ND 58505-0480

Each address shown is the respective addressee's last reasonable ascertainable post office address.

Subscribed and sworn to before me  
this 8<sup>th</sup> day of November 2010.

---

Notary Public